The Difference of Bone Healing Process Between the Use of Demineralized Freeze Dried Bone Xenograft and Bovine Bone Hydroxyapatite Xenograft

(*In vivo* Laboratory Experimental Study on New Zealand Rabbit)

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Introduction: Autogenous bone graft is the gold standard for bone defects treatment, however due to their limitation and the donor site morbidity may caused many surgeons use a xenograft type of bone grafting to cope the problem. Demineralized Freeze Dried Bone Xenograft (DFDBBX) which contains of growth factors, have a good biocompatibility.

Objective: The aim of this study is observed the difference in bone healing processes between DFDBBX and Bovine Bone Hydroxyapatite Xenograft (BBHAX).

Materials and Methods: Bicortical bone defects were created in the mandibular corpus of 30 New Zealand White Rabbits. The groups were divided into 3 groups which the first group were treated with DFDBBX into the hole and the negative control group was left perforated. The other group was treated with BBHAX. All group were evaluated after second and fourth weeks to count the ammount of osteoblast, osteoclast cells, Collagen-1 (Coll-1) and alkalin phosphatase (ALP).

Results: The second week of observation showed a significant difference of mean 12,45, SD 2,97 ($p<0,05$) in osteoblast cells. In Coll-1 showed with mean 13,2 SD 2,68 ($p<0,05$). The result of ALP showed with mean 14,6 SD 2,70 ($p<0,05$). In the the fourth week observation showed increased of osteoclast cells with mean 7,043, SD 2,77 ($p< 0,05$) and for Coll-1 with mean 17,6, SD 2,30 ($p< 0,05$).

Conclusion: DFDBBX showed more effective in treating bone defects of mandible of new zealand white rabbits in second week of observation.

Keyword: Demineralized Freeze-Dried Bone Xenograft, Bovine Bone Hydroxyapatite Xenograft, Bone Healing, type I collagen and alkaline phospathase